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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ryusuke Sasaki

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04/28/2004

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EXAMINER

ARNOLD, ADAM

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 04/28/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/771,111

Applicant(s)

SASAKI, RYUSUKE

Examiner

Adam Arnold

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-12 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner acknowledges the receipt and entry of the applicant's amendment.

The previous office action has been withdrawn in light of this IDS crossing in the mail.

The period for reply will begin on the mailing date of the current action.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 7, 8 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Dow, U.S. Patent No. 5,877,778. Referring to claim 1, Dow discloses a computer-readable recording medium for a video game (col. 3, line 8) for transforming a 3D object having a shape defined by a plurality of vertices (col. 9, lines 22-25), the program causing the computer to: obtain the rotation angle (col. 9, line 16) of each joint in a virtual skeleton of the 3D object (col. 9, line 19) where the plurality of vertices corresponding to the joints according to animation data defining the movement of the skeleton at every frame display period (col. 1, lines 63-65); and calculating the rotation angle (col. 9, line 16) and a weight predefined for the vertex corresponding to the joint and to move the vertex according to the rotation angle at every frame display period (col. 1, line 65 to col. 2, line 1).

Referring to claim 2, Dow discloses where the rotation angle of the vertex is calculated on the basis of one rotation angle relative to one rotation axis determined with the obtained rotation angle of the joint and the weight predefined for the vertex corresponding to the joint (col. 9, lines 1-2) and the vertex is moved to a position obtained by rotating the vertex through the rotation angle about the one rotation axis (col. 1, line 65 to col. 2, line 1).

Referring to claim 7, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 8, the remarks presented above with respect to claim 2 apply equally to this claim.

Referring to claim 10, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 11, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 12, Dow discloses determining an initial position for a plurality of vertices corresponding to a plurality of joints and a second position for each of the vertices (col. 4, lines 50-55) and moving the vertices to their respective positions (col. 4, line 59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dow in view of Mohri, U.S. Patent No. 6,515,669. Referring to claim 3, Dow discloses where the rotation angle of each joint is obtained for each of the three rotation axes intersecting at right angles (see Fig. 9C, "3D World Coordinates"); where in the movement of the vertices, one rotation axis and one rotation angle are calculated on the basis of the three obtained rotation angles of the joints (col. 9, lines 16-19); and where the vertex is moved according to the calculated rotation angle of the vertex and the one rotation axis at every display period (col. 1, lines 63-65). Dow does not disclose where the rotation angle is interpolated on the basis of the weight predefined for the vertex and the rotation angle is calculated. Mohri discloses where joint rotation angle data is determined by interpolation (col. 12, lines 22-25). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to determine joint rotation angle data by interpolation. One of ordinary skill in the art would have been motivated to do this in order because interpolation is a standard technique for determining missing or "middle" data.

Referring to claim 4, Dow does not disclose using "sphere-linear" interpolation. As pointed out in the rejection to claim 3 above, interpolation (a.k.a. "linear interpolation") is a standard mathematical technique for determining missing data. Applicant uses the term "sphere" to describe that the data involves angles, which if rotated around 3D axes, will determine a sphere.

Referring to claim 9, the remarks presented above with respect to claim 3 apply equally to this claim.

Allowable Subject Matter

1. Claims 5, 6, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
2. The following is an examiner's statement of reasons for allowance: The prior art does not anticipate, nor does it suggest, the system as claimed in claims 5 and 6. The prior art of record does not include determining whether the same weight as that predefined for the vertex moved immediately before is defined for the vertex to be moved and if it is defined, using that stored data to move the vertex.

The prior art does not anticipate, nor does it suggest, the system as claimed in claims 13 and 14. The prior art of record does not include determining an initial position for a plurality of vertices corresponding to a plurality of joints and a second position for each of the vertices based on the joint position of the corresponding joint and a weight predefined for each of the plurality of vertices, where the weight predefined for the vertex corresponding to the joint comprises a first weight for a first of the plurality of vertices and a second weight for the second of the plurality of vertices, the second weight being different from the first weight.

The above indicated limitations, particularly in combination with the other limitations in the respective claims are not anticipated or suggested by the prior art.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed December 23, 2003 have been fully considered but they are not persuasive. The gist of the applicant's argument can be summarized thusly—Dow describes the use of weighting in the generation of motion for 3D objects, but this weighting is applied to stored motion units in determining the final rotation value for the joint and is not the weighting of the vertices (page 9, 2d paragraph). The applicant goes on to describe the advantages of this approach. The examiner does not dispute the merits of the applicant's contention. However, the claim language does not adequately distinguish itself from the invention found in Dow. In claim 1, the applicant describes a "plurality of joints with each of the plurality of vertexes made to correspond to any one of the plurality of joints...to calculate the rotation angle of the vertex on the basis of the obtained rotation angle of each joint and a weight predefined for the vertex corresponding to the joining." The relevant portion in Dow states: "The weights give a priority to certain joint rotations for a certain MU [Motion Unit]...[t]he goal is to determine the important joint rotations of an MU motion, and to give those joints a higher joint weight than the other joints." See col. 1, line 66 to col. 2, line 7. In standard English parlance, a "joint" is a "vertex." The examiner has found the language of claim 1 does not sufficiently differentiate the vertices from the joints to which they correspond.

The rejections to these claims stand.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Adam Arnold** whose telephone number is **703-305-8413**. The examiner can normally be reached Monday-Thursday between 7:00 AM and 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks


Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor (Receptionist).



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600